Source Water Assessment Program (SWAP) Report For Carver Square Marketplace Realty Trust

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

? Inventory land uses within the recharge areas of all public water supply sources;

? Assess the susceptibility of drinking water sources to contamination from these land uses; and

? Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the Massachusetts Department of Environmental Protection, Bureau of Resource Protection, Drinking Water Program

Date Prepared: May 2004

Table 1: Public Water System (PWS) Information

PWS NAME	Carver Square Marketplace Realty Trust
PWS Address	Main Street (Route 58)
City/Town	Carver, Massachusetts
PWS ID Number	4052056
Local Contact	Wayne Southworth, Certified Operator
Phone Number	508 238-4230

Well Name	*Source ID#*	*Zone I (in feet)*	*IWPA (in feet)*	*Source Susceptibility*
Well #1	4052056-01G	250	1066	High

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential sources of contamination, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:
This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:
1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Area
5. Appendix

1. Description of the Water System

Carver Square Marketplace Realty Trust (the "facility") is a public water supply currently serving a commercial/retail complex consisting of restaurants, professional offices, Church, post office, gas station, convenience store, hair salon and doctors office. The facility is served by Well #1, which is located in the eastern portion of the property. Well #1 is a 6-inch diameter well drilled to a final depth of 83 feet. The well is located in a bedrock aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. The average daily withdrawal for the well is limited to 30,000 gallons per day, based on the current Zone I of 250 feet and Interim Wellhead Protection Area (IWPA) of 1066 feet. The IWPA

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by **the** water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

provides an interim protection area for a water supply well when the actual recharge area has not been delineated. The actual recharge area to the well may be significantly larger or smaller than the IWPA. Please refer to the attached map of the Zone I and IWPA. The well serving the facility has no treatment at this time. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1.

2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Inappropriate Activities in Zone Is;**
2. **Underground Storage Tanks (UST),**
3. **Septic System,**
4. **Athletic Fields and Lawn Care,**
5. **Hazardous Waste/Material Storage and Use,**
6. **Presence of Oil Contamination Sites within the IWPA,**

1. **Zone Is** – Currently, the well does not meet DEP's restrictions, which only allow water supply related activities in Zone Is. The facility's Zone I contains parking areas, cul-de-sac, detention basin, and catch basins. The public water supplier does own and/or control all land encompassed by the Zone 1. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

   Catch basins transport storm water from the eastern portions of the parking lot to the detention basin. As flowing storm water travels, it picks up debris and contaminants from streets, parking areas and lawns. Common potential sources of contamination include lawn chemicals, pet waste, leakage from dumpsters, household hazardous waste, and contaminants from vehicle leaks, maintenance, washing or accidents.

   Recommendations:

- To the extent feasible, remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- Do not use or store pesticides, fertilizers or road salt within the Zone I.
- Prohibit public access to the well by locking facilities and posting signs.

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Underground Storage Tanks	No	Well #1	High	At town facility and 1 service station
Agriculture	No	Well #1	High	Cranberry bogs
Storm water (Parking lot, detention basin & roads)	Well #1	Well #1	Moderate	Limit road salt usage and provide drainage away from wells
Athletic fields	No	Well #1	Moderate	Fertilizer and pesticide use
Septic System	No	Well #1	Moderate	Refer to septic systems brochure in the appendix
Storage, and use of hazardous materials	No	Well #1	Low	Small quantities of petroleum products, cleaning supplies, etc.
Oil Contamination Sites	No	Well #1	-	Refer to appendix

*** -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.**

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone II. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

- Conduct regular inspections of the Zone I and look for illegal dumping, evidence of vandalism, etc.
- The Department recommends the public water supplier consider nonstructural techniques such as parking lot sweeping to reduce the amount of potential contaminants in storm water runoff. Sediments should be removed from detention basin as necessary. To learn more refer to the *Storm Water Management Handbook*, *Volume 1 and 2* for information on BMPs and documents available at http://www.state. ma.us/dep/brp/ww/wwpubs.htm.

2. **Underground Storage Tanks** - There are several facilities with underground storage tanks containing gasoline and diesel fuel within the IWPA. There are three (3) UST's at Carver Square Auto Services, located approximately 750 feet west of Well #1. The Town of Carver has two (2) UST's located approximately 900 feet west northwest of Well #1. All the UST's at both facilities have double wall tanks that have cathodic protection. If managed improperly, USTs can be potential sources of contamination due to leaks or spills of the chemicals they store.

Recommendation:

- Work with the local fire department to have the UST's in your IWPA inspected for compliance with local code requirements. Any modifications to the UST must be accomplished in a manner consistent with Massachusetts's plumbing, building, and fire code requirements.

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3. **Septic System** - All of the facilities septic systems are located within the IWPA. The closest leaching field is located approximately 300 the southwest of Well #1.

Recommendation:

- Educate tenants on private septic systems about using cleaning compounds that are safe for the septic system, and on proper disposal practices, i.e. only sanitary waste in the septic system. Septic system component should be located, inspected, and maintained on a regular basis. Refer to the attachments for more information regarding septic systems.

4. **Athletic Fields and facility Lawn Care** - The facilities lawn area and towns athletic Fields are located within the IWPA. Over application of pesticides and fertilizers on lawns is a potential source of contamination to the water supply.

Recommendation:

- Municipal Facilities - Work with local officials to develop a turf management program for athletic playing fields and municipal recreation areas. For more information on turf management, refer to: http://www.extension.umn.edu/distribution/horticulture/DG5726.html
- Use best management practices (BMPs) for applying, handling, and storage of pesticides, herbicides, and fertilizers (refer to attachments on fertilizer and pesticide use). Information on environmentally sound lawn care practices is available from the Massachusetts Department of Food and Agriculture Pesticide Bureau's at http://www.massdfa.org.

5. **Storage, Use and Handling of Oil/Hazardous Materials in IWPA** - Within building #2 is a maintenance storage area that contains small quantities of gasoline, oil, paints and cleaning supplies. The oil/hazardous material storage (e.g. gasoline, paint, petroleum products, cleaning supplies, etc.) poses a potential threat to the well due to its proximity and potential for accidental release. Additionally, within the IWPA are municipal garages.

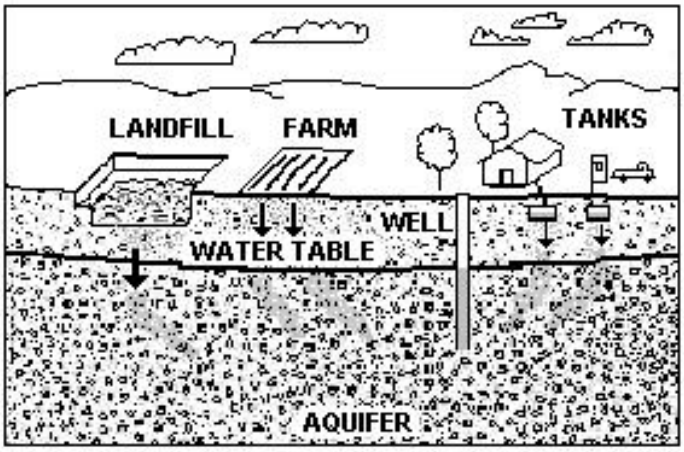

Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information:

Contact Isabel Collins in DEP's Lakeville office at (508) 946-2726 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at: www.state.ma.us/dep/brp/dws/

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws, including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, **and general water supply protection** information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been made available to the public water supplier, town boards, and the local media.

Recommendation:

- Provide containment and exercise caution when using and storing these products.
- Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials. To learn more, see the hazardous materials guidance manual at www.state.ma.us/dep/bwp/dhm/dhmpubs.html.
- Educate tenants and staff on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, and certified operator. Post labels as appropriate on raw materials and hazardous waste.
- Work with the town to incorporate best management practices for stormwater, salts, and road-building materials at the municipal garages. For more information, refer to: http://www.epa.gov/region1/steward/neeat/munis1.html

6. **Presence of Oil Contamination Site within the IWPA** - The IWPA for Well #1 contains DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the map as Release Tracking Number 4-0000612 and 4-0012848. Refer to the attached map and Appendix for more information.

Recommendation:

- Monitor progress on any ongoing remedial action conducted for the known oil and/or Hazardous Material Release Sites.

Other activities noted during the assessment: Approximately 25 percent of the wellhead protection area is comprised of cranberry bogs which are located northeast of the well. As is the case for most other crops the commercial production of cranberries usually requires input of fertilizer and pesticides. Utilization of best management practices (BMPs) as planned and described in an established conservation farm plan can ensure that agricultural system will uphold the integrity of the surrounding natural resources.

Recommendation:

- Encourage Cranberry bog owner/operator to:
  1. Obtain and follow an approved USDA, Natural Resource Conservation Service Conservation Farm Plan.
  2. Maintain a pesticide license or certification with the Massachusetts Department of Food and Agriculture including all applicable training and recertification courses.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the well's susceptibility to contamination. Carver Square Marketplace Realty Trust should review and adopt the key recommendations above and the following:

Zone I:

- Keep non-water supply activities out of the Zone I.
- Prohibit public access to the well by locking facilities, gating roads, and posting signs.

Training and Education:

- Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, groundskeepers, certified operator, and food preparation staff. Post labels as appropriate on raw materials and hazardous waste.
- Post drinking water protection area signs at key visibility locations.
- Work with your community to ensure that stormwater runoff is directed away from the well and is treated according to

DEP guidance.

Facilities Management:

- Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on facility property.

Planning:

- Work with local officials in Carver to include the Carver Square Marketplace IWPA in Aquifer Protection District Bylaws and to assist you in improving protection.
- Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a land use inventory to assist in setting priorities, focusing inspections, and creating educational activities.

Funding:

The Department's Wellhead Grant Protection Program provides funds to assist public water suppliers in addressing Wellhead protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the 2001 "Wellhead Protection Grant Program". For additional information, please refer to the attached program fact sheet. Please note: each program year the Department posts a new Request for Response for the Grant program (RFR). Other funding opportunities are described in "Grant and Loan Programs: Opportunities for Watershed Protection, Planning and Implementation" at http://www.state.ma.us/dep/brp/mf/files/glprgm.pdf.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Fact sheet
- Your Septic System Brochure
- Pesticide Use Fact sheets
- Source Protection Sign Order Form

5. Appendix

Table of DEP Regulated Chapter 21E Hazardous Materials Release Sites

DEP's datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP's Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP's Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state's OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at http://www.state.ma.us/dep/bwsc. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at http://:www.state.ma.us/dep/bwsc/sitellst.htm, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN)

RTN	Release Site Address	Town	Contaminant Type
4-0000612	118 Main Street	Carver	Oil
4-0012848	132 Main Street	Carver	Hazardous Materials

For more location information, please see the attached map. The map lists the release sites by RTN.